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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/091,398	03/07/2002	Seong-Hwoon Kim	017750-698	8639

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Patrick C. Keane  
BURNS, DOANE, SWECKER & MATHIS, L.L.P.  
P.O. Box 1404  
Alexandria, VA 22313-1404

EXAMINER

LEE, BENNY T

ART UNIT

PAPER NUMBER

2817

DATE MAILED: 08/12/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

10,091,398


**UNITED STATES DEPARTMENT OF COMMERCE  
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SERIAL NUMBER	FILING DATE	FIRST NAMED APPLICANT	ATTORNEY DOCKET NO.

EXAMINER	
ART UNIT	PAPER NUMBER
	6

DATE MAILED:

 This is a communication from the examiner in charge of your application.  
COMMISSIONER OF PATENTS AND TRADEMARKS

- ☒ This application has been examined     
 ☐ Responsive to communication filed on \_\_\_\_\_     
 ☐ This action is made final.

A shortened statutory period for response to this action is set to expire Three (3) month(s), 45 days from the date of this letter.  
 Failure to respond within the period for response will cause the application to become abandoned. 35 U.S.C. 133

**Part I THE FOLLOWING ATTACHMENT(S) ARE PART OF THIS ACTION:**

- |   |   |
|---|---|
| 1. <input checked="" type="checkbox"/> Notice of References Cited by Examiner, PTO-892. | 2. <input type="checkbox"/> Notice re Patent Drawing, PTO-948.                  |
| 3. <input checked="" type="checkbox"/> Notice of Art Cited by Applicant, PTO-1449       | 4. <input type="checkbox"/> Notice of Informal Patent Application, Form PTO-152 |
| 5. <input type="checkbox"/> Information on How to Effect Drawing Changes, PTO-1474      | 6. <input type="checkbox"/> _____   |

**Part II SUMMARY OF ACTION**

1. ☒ Claims 1-20 are pending in the application.
- Of the above, claims \_\_\_\_\_ are withdrawn from consideration.
2. ☐ Claims \_\_\_\_\_ have been cancelled.
3. ☐ Claims \_\_\_\_\_ are allowed.
4. ☒ Claims 1, 7; 8, 9; 10, 11; 12-20 are rejected.
5. ☒ Claims 2-6 are objected to.
6. ☐ Claims \_\_\_\_\_ are subject to restriction or election requirement.
7. ☐ This application has been filed with informal drawings which are acceptable for examination purposes until such time as allowable subject matter is indicated.
8. ☐ Allowable subject matter having been indicated, formal drawings are required in response to this Office action.
9. ☐ The corrected or substitute drawings have been received on \_\_\_\_\_. These drawings are: ☐ acceptable; ☐ not acceptable (see explanation).
10. ☐ The ☐ proposed drawing correction and/or the ☐ proposed additional or substitute sheet(s) of drawings, filed on \_\_\_\_\_ has (have) been ☐ approved by the examiner. ☐ disapproved by the examiner (see explanation).
11. ☐ The proposed drawing correction, filed \_\_\_\_\_, has been ☐ approved. ☐ disapproved (see explanation). However the Patent and Trademark Office no longer makes drawing changes. It is now applicant's responsibility to ensure that the drawings are corrected. Corrections MUST be effected in accordance with the instructions set forth on the attached letter "INFORMATION ON HOW EFFECT DRAWING CHANGES", PTO-1474.
12. ☐ Acknowledgment is made of the claim for priority under 35 U.S.C. 119. The certified copy has ☐ been received ☐ not been received
- ☐ been filed in parent application, serial no. \_\_\_\_\_; filed on \_\_\_\_\_
13. ☐ Since this application appears to be in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under Ex parte Quayle, 1935 C.D. 11; 453 O.G. 213.
14. ☐ Other

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The disclosure is objected to because of the following informalities: Page 6, line 8, note that "2002a" should correctly be--202--. Page 9, line 13, note that "406" should correctly be--506--. Page 11, lines 8,11, should "632" properly be--632x-- and/or --632y--?; lines 9, 10, similarly should "624" properly be --624x-- and/or --624y--?; likewise should "631" properly be --631y-- and/or --631y--?.

Appropriate correction is required.

Note that following the sets of inclusive reference labels are not consistent with the labeling in the drawing Figures and should be rewritten in the manner indicated below: page 5, lines 6, 16, "106-116" to --106, 108, 110, 112, 114, 116--; page 5, line 16, "124-134" to --124, 126, 128, 130, 132, 134--; page 5, line 17, "124-128" and "130-134" to --124, 126, 128-- and --130, 132, 134--; respectively; page 6, line 4, "224-228" to --224, 226, 228--; page 6, line 6, "242-252" to --242, 244, 248, 250, 252--; page 6, line 7, "230-234" to --230, 232, 234--; page 6, line 9, "254-264" to --254, 256, 258, 260, 262, 264--; Page 7, last line, "424-434" to --424, 426, 428, 430, 432, 434--; page 9, last line and page 10, line 4, "506-516" to --506, 508, 510, 512, 514, 516--; page 10, lines 6, 8, 10 and page 12, line 14, "506-510" to --506, 508, 510--; page 10, lines 7, 9, 12 and page 12, line 16, "512-516" to --512, 514, 516--; page 14, lines 17, 18, 20, "701-705" to --701, 703, 705--.

Appropriate correction is required.

The disclosure is objected to because of the following informalities: Note the following reference labels in the corresponding drawing figures need explicit description in the specification:

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Note that the following reference labels in the corresponding drawing figures need explicit description in the specification: Fig. 4 ( $Z_{in}$ ,  $Y_b$ ,  $Y_c$ ,  $Y_d$ ); Fig. 5 (530, 532); Fig. 6 (633, 634<sub>y</sub>).

Appropriate correction is required.

The drawings are objected to because of the following: In Fig. 4, reference labels -- (400, Y, L)-- need to be provided. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claims 13-20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claims 13, 18, note that it is unclear how “a waveguide” (recited herein) relates to “a waveguide” (recited in cl 12). For example, is each waveguide intended to be one in the same “waveguide” or different “waveguides”? Similarly, it is unclear how a “first (array of) device(s)” and a “second (array of) device(s)” (recited herein) relates to “at least one...device” (recited in cl 12).

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

- (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
- (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who

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has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371© of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) do not apply to the examination of this application as the application being examined was not (1) filed on or after November 29, 2000, or (2) voluntarily published under 35 U.S.C. 122(b). Therefore, this application is examined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

Claims 1; 8, 9; 12 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Rao et al.

Rao et al (fig. 1) discloses a waveguide (11) providing an inherent waveguide path there within. Note that a dielectric element (25) can be inserted into the waveguide thereby altering the physical dimension of the waveguide path. A electromechanical (i.e. piezoelectric) means (13) is attached to dielectric element (25) and responsive to a voltage (v) such as to insert a varying amount into the waveguide path.

Claims 1, 7; 8, 9; 12 are rejected under 35 U.S.C. 102(e) as being clearly anticipated by Malone et al.

Malone et al (fig. 2) discloses a waveguide (285) providing an inherent waveguide path there within. Note that a dielectric vane (255) protrudes within and is movable therein (denoted by arrow 294) to alter the physical dimensions of the waveguide. An electromechanical actuator

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*responsive to a DC voltage such that an actuator moves*  
p (270) is attached to the vane (255) and includes piezoelectric layers (denoted by arrows 290) the  
vane into and out of the waveguide.

With respect to claim 7, note that the phase shifter of the invention is used in conjunction with an antenna and a transceiver.

Claims 1; 8, 9; 10, 11; 12 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Corbell.

Corbell discloses a phase shifting apparatus including a waveguide (10) having a plurality of dielectric probes serially spaced along the waveguide (see Fig. 2) by a quarter wavelength ( $\lambda/4$ ). Note that the dielectric probe inherently alters the physical dimensions of the waveguide and thus alters the phase shift. As depicted in Figs. 1 and 2, the probes are held by and physically movable towards and outwards of the waveguide by means of an electromechanical actuator.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The USSR reference discloses plural dielectric plates controlled by piezoelectric control elements.

Any inquiry concerning this communication should be directed to Benny Lee at telephone number (703) 308-4902.

*Benny Lee*  
BENNY T. LEE  
PRIMARY EXAMINER  
ART UNIT 2817

B LEE/pj

08/07/03